## REMARKS

The amendments to the claims are supported by the claims as originally filed, and throughout the specification.

Claims 2, 5, 7, 10, 12, 15, 17, 20, 38, 42-58, 60, 62, 64, 66, 68, and 70 have been cancelled without prejudice.

New Claims 71-82 have been added, and are supported by the original claims, and throughout the specification.

Claims 1, 3, 4, 6, 8, 9, 11, 13, 14, 16, 18, 19, 21-37, 39-41, 59, 61, 63, 65, 67, 69, and 71-82 are in the case, of which Claims 1, 3, 4, 6, 8, 9, 11, 13, 14, 16, 18, 19, 21, 22, 59, 61, 63, 65, 67, 69, and 71-82 are active. No new matter is believed to be added by entry of these amendments.

In the Advisory Action of July 10, 2003, the Examiner has maintained the rejections set forth in the Official Action of March 31, 2003.

The Examiner suggests that the term "undried" could refer to particles wetted with any liquid, such as a liquid surfactant. However, as used in the present application, the term "undried" refers to particles which have been washed with water, and from which water has not been removed. See the present specification at page 5, lines 4-10. This meaning of the term "undried" is reinforced by the comparative examples (i.e., at pages 10 and 13), wherein the conventional process of washing metal particles with water and then drying them is compared to composite substances and conductive paste prepared by Applicants' method, in which the washed metal particles are mixed directly with terpineol (e.g., embodiment 1 at page 8, line 18, to page 9, line 14).

Furthermore, Applicants respectfully submit that the definition of "undried" of the present application is proper because it is not repugnant to the colloquial usage of the terms "wet" and "dry." Thus, the term "undried" is properly defined in the specification in a manner

consistent with well-established case law. See, for example, M.P.E.P. § 2111.01, citing *In re Hill*, 161 F.2d 367, 73 U.S.P.Q. 482 (CCPA 1947).

Neither Burn nor Shoji expressly describes "undried" metal powders (i.e., metal powders wetted with water). Rather, both references simply refer to various metal powders without indicating whether or not the powders have been dried. Furthermore, Applicants respectfully submit that the metal powders of Shoji and Burn cannot reasonably be considered inherently "undried" because, as shown by the examples and comparative examples of the present specification, metal powders may be either wetted with water or dried (i.e., water-free), depending on the processing conditions used. Applicants note that an inherent property be necessarily present not just probably or possibly present. See M.P.E.P. § 2163.07(a). Thus, the powders of Shoji and Burn are not necessarily "undried" before being mixed with a solvent. Accordingly, neither Shoji nor Burn anticipate the claimed invention.

As discussed above, neither Shoji nor Burn necessarily describe "undried" metal particles. Indeed, since the conventional practice is to water wash, then dry metal powders before use (specification at page 2, lines 4-6), one would reasonably assume that both Shoji and Burn describe conventional "dried" metal powders. However, the "dried" metal powders of Shoji and Burn are quite different from the "undried" metal particles of the present invention, as illustrated by the attached drawings. The particles of the present invention (embodied by new claims 71 or 74) are surrounded by a solvent, and therefore the surfaces of the particles are not in physical contact (first drawing), thereby inhibiting the formation of aggregates. In contrast, the "dried" particles of, for example, Shoji can touch prior to preparation of the conductive paste (see second drawing), thereby promoting aggregates (by adhesion of the particle surfaces to each other). Thus, by omitting a step in which washed metal particles (i.e., metal particles wetted with water) are dried before being mixed with a solvent, the claimed metal particles are not aggregated in the composite substance/conductive

paste as they are when the metal particles are dried prior to being mixed with a solvent. Thus, for example, the particle size distribution of metal particles in the claimed composite substance and conductive paste would be expected to be different from the particle size distribution found in conventional composite substances and conductive pastes prepared from dried metal powders (i.e., the conductive paste of Shoji and Burn). This difference is shown by the comparative data of the present specification.

At pages 9-11 of the specification, Applicants have compared a conductive paste made by the process of the present invention, with an otherwise identical conductive paste prepared by a conventional process in which Ni metal particles are dried prior to being mixed with an organic solvent (see page 10, lines 1-16). The difference between the conventional conductive paste, prepared from dried metal powders, and the claimed conductive paste, prepared from an undried metal powder, is shown in Table I at page 11 of the present specification. The claimed conductive paste (Test Piece No. 1) has higher dry sheet density, and substantially lower roughness compared to a conductive paste (Test Piece No. 2) prepared from a dried metal powder. Likewise, a Ag conductive paste prepared using "undried" metal powders (Test Piece No. 3) has a substantially higher dry sheet density and lower roughness compared to a Ag conductive paste prepared from a dried Ag powder (Table II at page 14 of the present specification). Thus, the claimed composite substance and conductive paste prepared from undried metal powders have improved properties compared to those prepared from conventional dried metal powders, due to the lack of metal powder aggregates in the claimed composite substance and conductive paste.

As discussed above, the method of preparing a composite substance and conductive paste from "undried" powders provides a different composite substance or conductive paste in which the aggregates found in conventional conductive pastes are not found (present specification at page 4, lines 5-16). Thus, the composite substance and conductive paste of

the claimed invention are different from conventional composite substances and conductive pastes prepared from dried metal powders (i.e., the composite substances and conductive pastes of Shoji and Burn). Moreover, the claimed composite substance and conductive paste have superior properties (i.e., little or no aggregates) compared to conventional composite substances and conductive pastes, as shown by the comparative data described above. Thus, not only do Shoji and Burn fail to anticipate the claimed composite substance and conductive paste, but Shoji and Burn also fail to suggest the claimed composite substance and conductive paste.

Furthermore, a "particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." M.P.E.P. § 2144.05(II)(B). Because neither Shoji nor Burn recognize that preparing a composite substance or conductive paste from undried metal powders is result-effective in regard to the properties of the composite substance or conductive paste, it would not be obvious to modify the processes of Shoji and Burn to provide the claimed composite substance and conductive paste. Thus, Shoji and Burn neither anticipate nor suggest the claimed invention.

In summary, Shoji and Burn do not anticipate the claimed composite substance and conductive paste because Shoji and Burn prepare their conductive pastes with a different type of metal powder (i.e., "dried"). Shoji and Burn neither describe nor suggest "undried" powders, and the powders of the Shoji and Burn are not *necessarily* "undried". Furthermore, Shoji and Burn fail to suggest the claimed composite substance and conductive paste because Applicants have demonstrated that by omitting the conventional drying step, composite substances and composite pastes with improved properties (i.e., significantly reduced aggregation of the powder) are provided. In addition, improved electrodes can be prepared

from the claimed conductive paste, due to the reduced aggregation of the conductive powder. Moreover, since Shoji and Burn fail to recognize the importance of using "undried" powders, as a matter of law, it would not be obvious to replace the "dried" powders of Shoji and Burn with the "undried" powders of the present invention. Thus, Shoji and Burn neither anticipate nor suggest the claimed invention.

In regard to the withdrawn claims, Applicants note that M.P.E.P. § 821.04 states, "if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined." As discussed above, Applicants respectfully submit that the elected product claims are allowable, and therefore request rejoinder of the non-elected process claims.

Accordingly, and for the reasons stated above, Applicants respectfully request that the rejections be withdrawn. Applicants submit that the claims are now allowable, and early notification thereof is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Norman F. Oblon
Attorney of Record
Registration No. 24,618

Thomas A. Blinka, Ph.D.
Registration No. 44,541

22850

Tel.: (703) 413-3000
Fax: (703) 413-2220

NFO/TAB/kst